

# Data Disaggregation and Reporting

0011 0010 1010 1101 0001 0100 1011

**Arizona Regional Assistance Training Seminars**

Arizona Department of Education  
RMC Research Corporation, Denver  
April-May, 2003



# PURPOSES

To increase understanding of:

- The value of data disaggregation as a decision making tool
- Basic testing concepts
- Classroom level data use



# Why Use Data?

0011 0010 1010 1101 0001 0100 1011

- Human decision making biases exist
  - Information processing demands
  - Values and judgments
- Teachers make many important decisions
  - High stakes, long-term influence
  - Implicit decisions about expectations
- Feedback is the "Breakfast of Champions"

1245

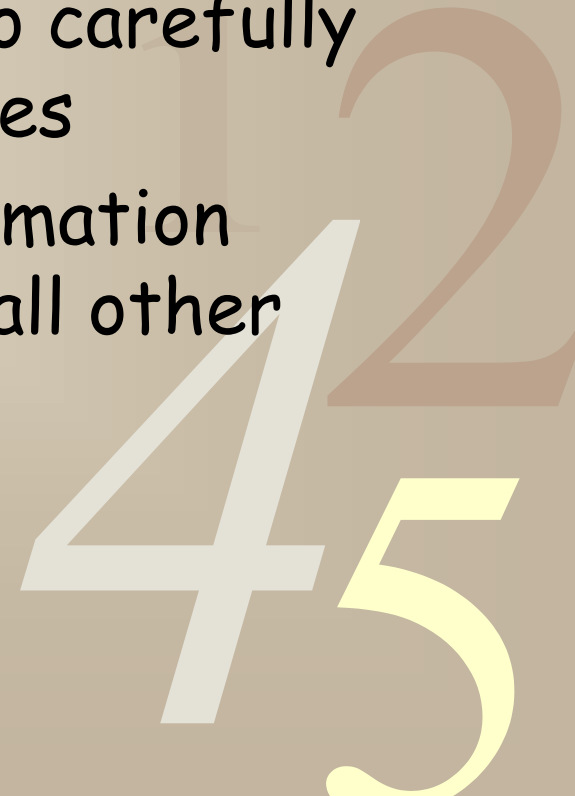
# Research on Principals

- Typically receive information quickly, verbally, & only once
- Make decisions when they think they have enough information
- Like summary reports, not raw data
- Like information accompanied with interpretation
- Goal-oriented principals use information more often to make decisions

- SOURCE: Riehl, Pallas & Natriello, 1991. Center for Research on Effective Schooling for Disadvantaged Students, Johns Hopkins University. Report #12

# Research on Teachers

- ◆ Teachers only consider relevant information when making decisions in the classroom.
- ◆ Teachers don't have time to carefully consider needs and objectives
- ◆ Teachers have limited information processing ability, just like all other humans



# Teacher Research (cont.)

- ◆ Teachers plan for curricular content, not objectives
- ◆ Teachers plan to control student behavior and reduce uncertainty
- ◆ Teachers plan to reduce information processing needs while in the classroom
- ◆ Experienced teachers do less planning than other teachers

# Teacher Research (cont.)

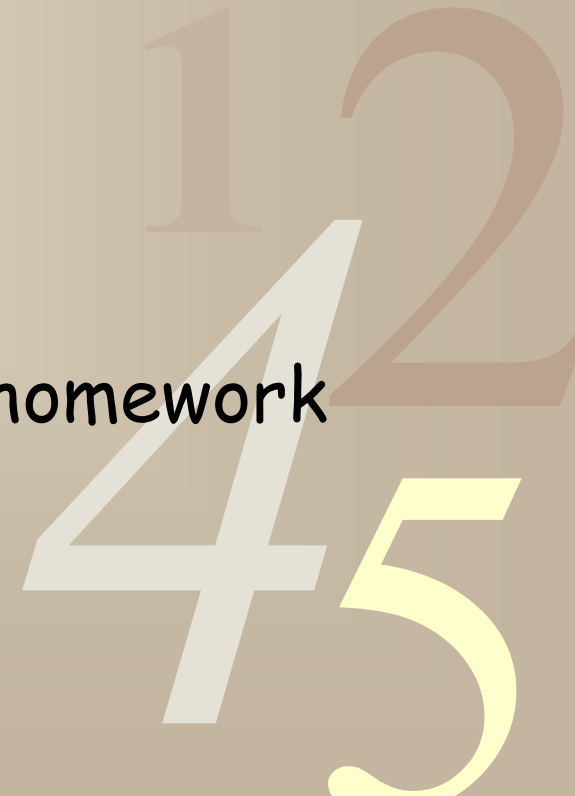
- ◆ Teachers use a wide variety of information about students when planning
- ◆ Teachers use academic cues mostly, but also social and personal information
- ◆ Teachers consider whether their planned activities are likely to involve students and be interesting

◆ SOURCE: Riehl, Pallas & Natriello, 1991. Center for Research on Effective Schooling for Disadvantaged Students, Johns Hopkins University. Report #12

# Forms of Assessment

0011 0010 1010 1101 0001 0100 1011

- Formal Assessments
  - SAT 9
  - AIMS
  - MAP
- Informal Assessment
  - teacher-made tests, quizzes, homework
  - student classroom work
  - portfolios
  - report card grades





# Likely Culprits Activity

0011 0010 1010 1101 0001 0100 1011

- As a faculty, analyze a practice test
  - What mistakes do students make?
  - Why do they make the mistakes they make?
  - How should we change our daily practice to help students?

12  
45

# Important Testing Concepts

0011 0010 1010 1101 0001 0100 1011

- NORM-REFERENCED TEST SCORES:
  - Percentile
  - Grade Equivalent Score
  - Normal Curve Equivalent
- CRITERION-REFERENCED TEST SCORES
  - Scale scores
  - Cut scores

12  
45

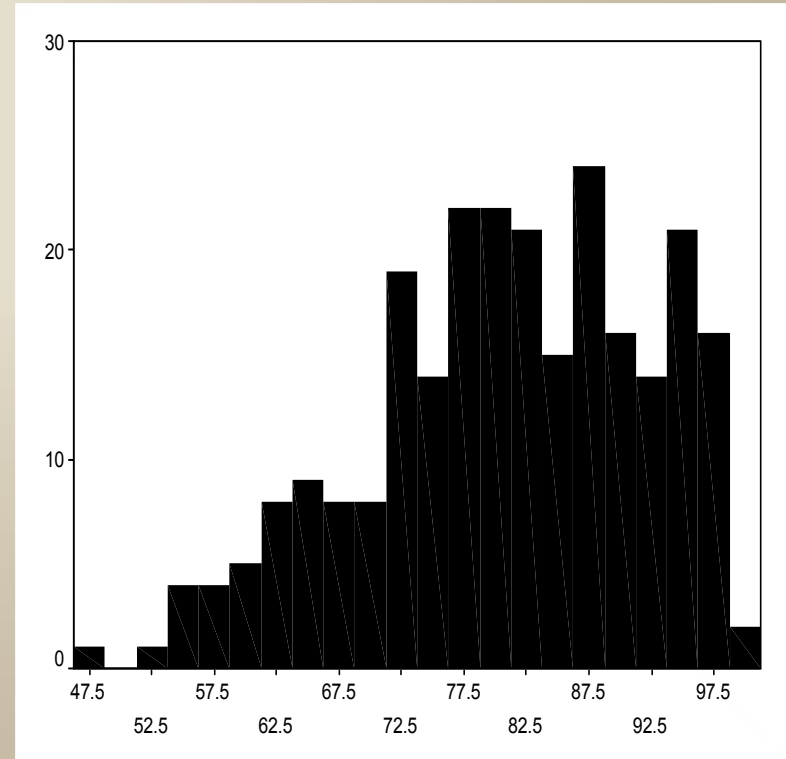
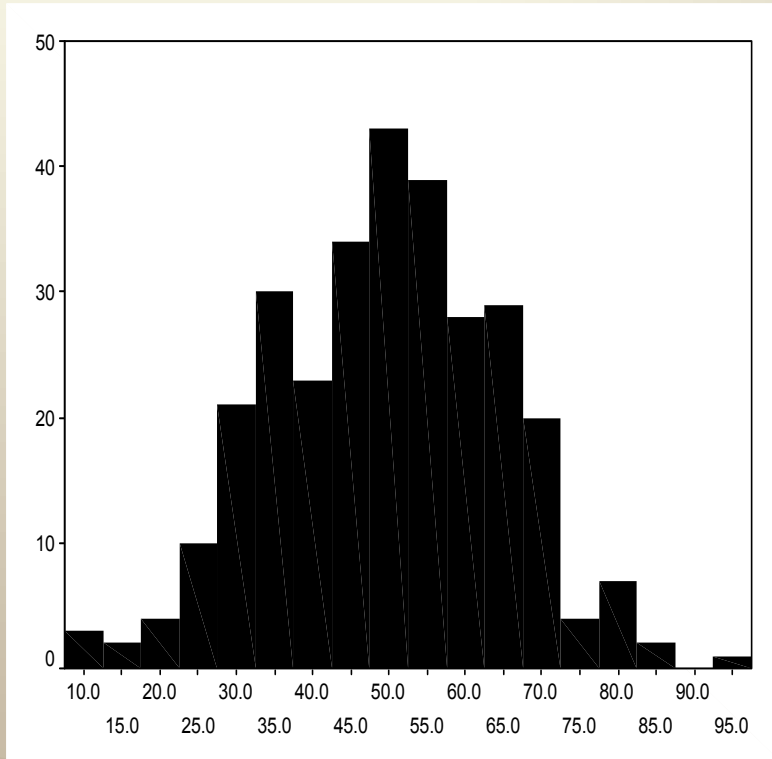
# Norm vs. Criterion

- 0011 0010 1010 1101 0001 0100 1011
- To classify or rank
  - Compare with other students
  - Items vary in difficulty
  - Normal Curve distribution
- To measure skills
  - Compare with preset standards
  - Items parallel in difficulty
  - Skewed distribution

12  
45

# Normal vs. Skewed

0011 0010 1010 1101 0001 0100 1011



# Percentile

0011 0010 1010 1101 0001 0100 1011

- A point that divides a distribution into two parts: at or below, or above. There are 99 percentiles that divide a distribution into 100 parts.
- *Percentiles should NOT be averaged.*

12  
45

# Grade Equivalent Score

0011 0010 1010 1101 0001 0100 1011

- Relationship of a given student's test score to the average of other students. Reported in terms of grade and month.
- *A score of 8<sup>th</sup> grade, 2<sup>nd</sup> month on a fourth grade reading test does NOT mean that a student is reading at the 8<sup>th</sup> grade level.*

# Normal Curve Equivalent

0011 0010 1010 1101 0001 0100 1011

- Standard scores based on the normal curve. They have a range of 1 to 99.
- *Normal Curve Equivalent (NCE) scores CAN be averaged.*

12  
45

# Scaled Score

0011 0010 1010 1101 0001 0100 1011

- A raw score that has been transformed to measure achievement.
- *Scaled scores can be compared across time.*

12  
45



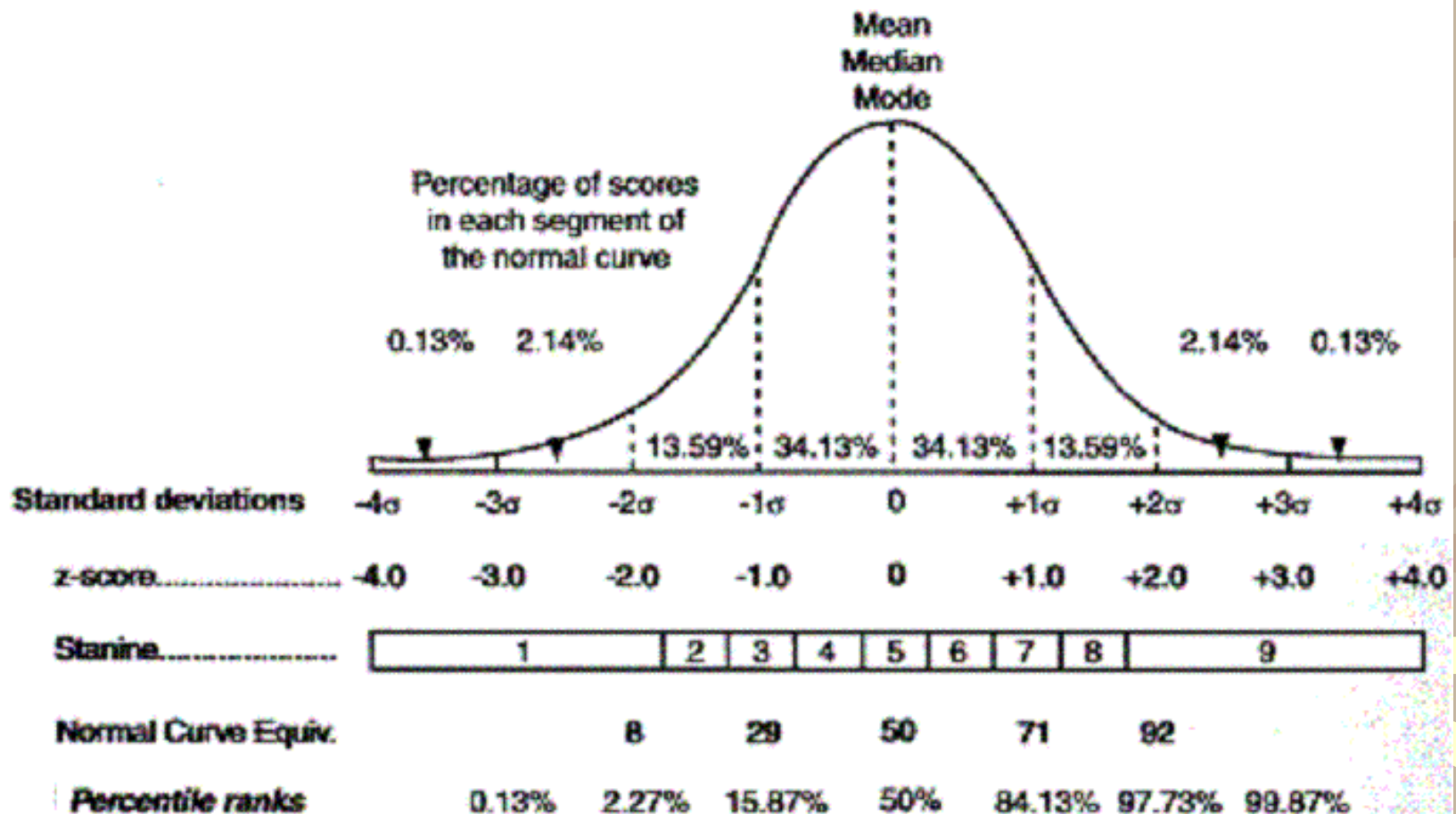
# Cut Score

0011 0010 1010 1101 0001 0100 1011

- The lowest score on a test student can obtain to pass the test.

12  
45

# The Normal Curve & Various Score Systems



# Question:

0011 0010 1010 1101 0001 0100 1011

- If teachers graph their own test score results, they may get a 5 percent gain in test scores. Why?

12  
45

# Data Displays

0011 0010 1010 1101 0001 0100 1011

- Tables
- Bar Charts
- Pie Charts
- Line Charts
- Stacked Bar Charts

12  
45

# Data Table

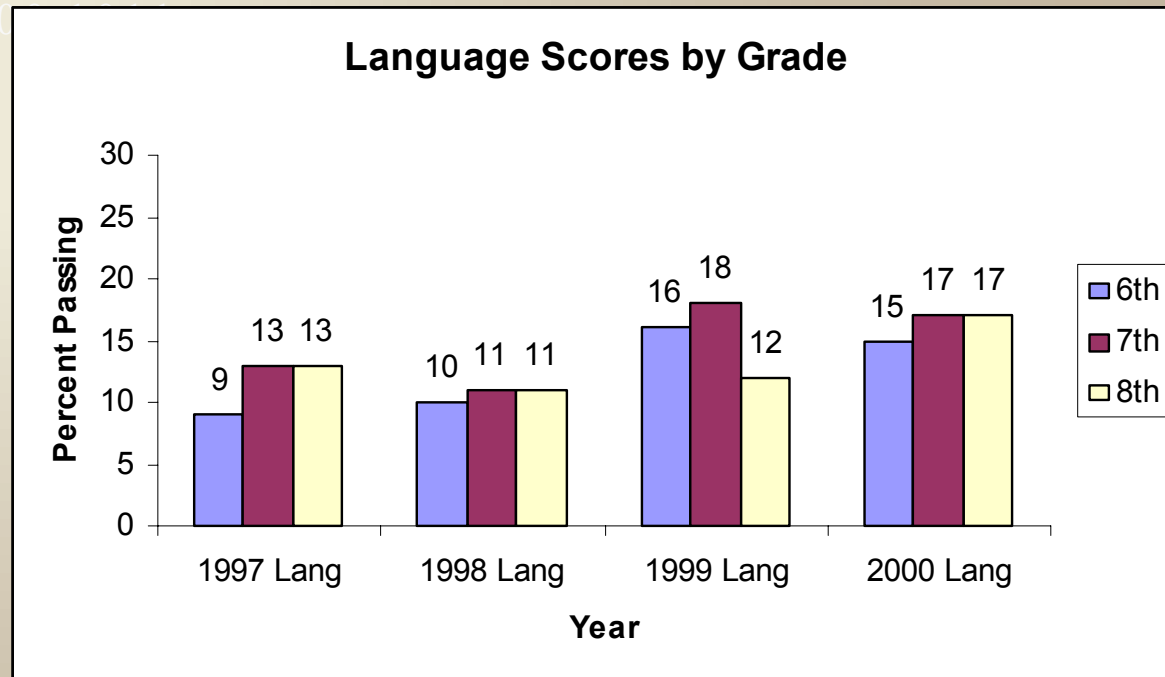
- Useful for complex information
- Useful to summarize large amounts of data
- Often hard to interpret

Percentage of Middle School Students  
Scoring at the 50th Percentile or Higher  
on the SAT 9

Grade	1997	1998	1999	2000	2001	2002
6th	5	22	13	27	38	44
7th	6	38	14	20	32	40
8th	12	37	25	21	40	53

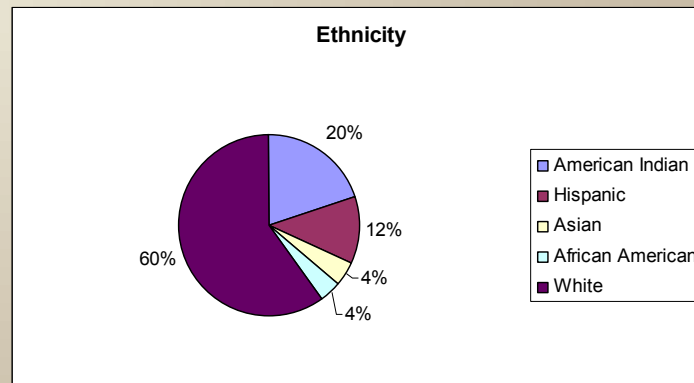
# Bar Chart

- Useful for categorical data
- Shows distribution
- Illustrates range
- Illustrates variations



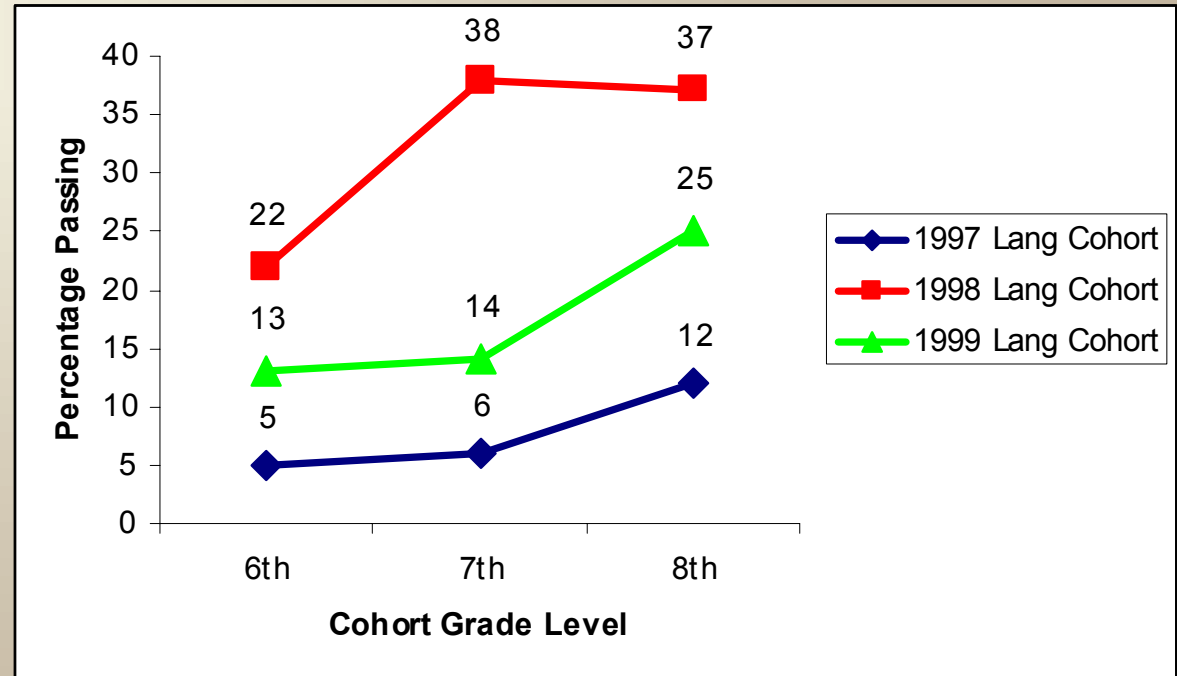
# Pie Chart

- Useful for describing how a resource is divided for various uses
- Useful for displaying percentages
- Useful for displaying some demographics



# Line Chart

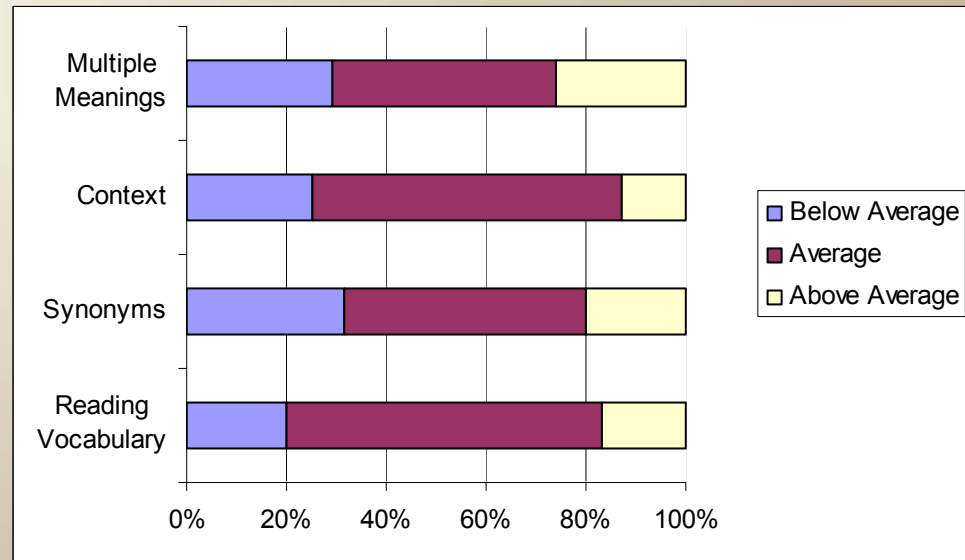
- Useful for showing relationships
- Useful for displaying data across time
- Misused to display categorical data





# Stacked Bar Chart

- Useful for showing percentage of cases
- Useful for displaying state assessment data



# Graphing Activity

0011 0010 1010 1101 0001 0100 1011

- Create bar graphs of SAT 9 Reading, Mathematics and Language NCE scores for the 3<sup>rd</sup> and 5<sup>th</sup> Grades
- Create stacked bar graphs of AIMS Reading, Writing and Mathematics scores for the 3<sup>rd</sup> and 5<sup>th</sup> Grades



# Questions to Answer

0011 0010 1010 1101 0001 0100 1011

- How do the SAT 9 and AIMS results compare?
- Where are our strengths?
- Where are our weaknesses?



# Content Clusters Graphing

0011 0010 1010 1101 0001 0100 1011

- Create Stacked Bar Charts for 3<sup>rd</sup> Grade Content Clusters
- Create Stacked Bar Charts for 5<sup>th</sup> Grade Content Clusters

1 2  
4 5

[illegible]

# More Questions to Answer

0011 0010 1010 1101 0001 0100 1011

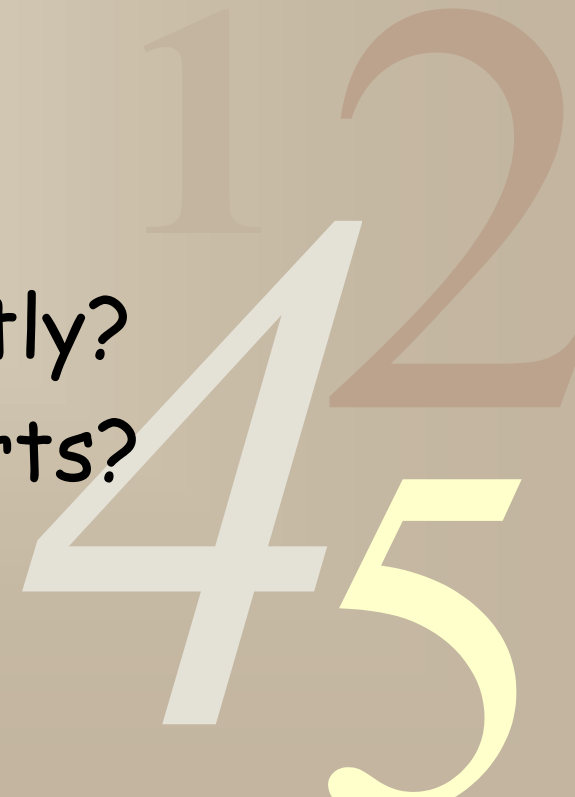
- Where are our specific strengths?
- Where are our specific weaknesses?
- Which groups of students are not doing well?

12  
45

# What Should We Do?

0011 0010 1010 1101 0001 0100 1011

- How can we build on strengths?
- How can we address weaknesses?
- What is working well?
- What is not working?
- What should we do differently?
- How can we coordinate efforts?





# No Child Left Behind Disaggregation Categories

- Economically disadvantaged
- Race/ethnicity
- Disability status
- English proficiency
- (Gender)
- (Migrant Status)

*DO NOT REPORT DATA FROM LESS THAN  
20 STUDENTS!*

# Types of Classroom Assessments

0011 0010 1010 1101 0001 0100 1011

- Homework
- Quizzes
- Papers
- Worksheets
- Tests
- Projects
- Portfolios
- Authentic tasks



# Classroom Assessments: Pointers

0011 0010 1010 1101 0001 0100 1011

- Make feedback diagnostic for students and instruction
- Avoid bad feedback such as: "try harder", "vague", or "illogical"
- Give specific feedback
- Make them integral to the instructional process

• (Guskey, 2003; Peters & March, 1999; Wiggins, 1993)

# Activity

0011 0010 1010 1101 0001 0100 1011

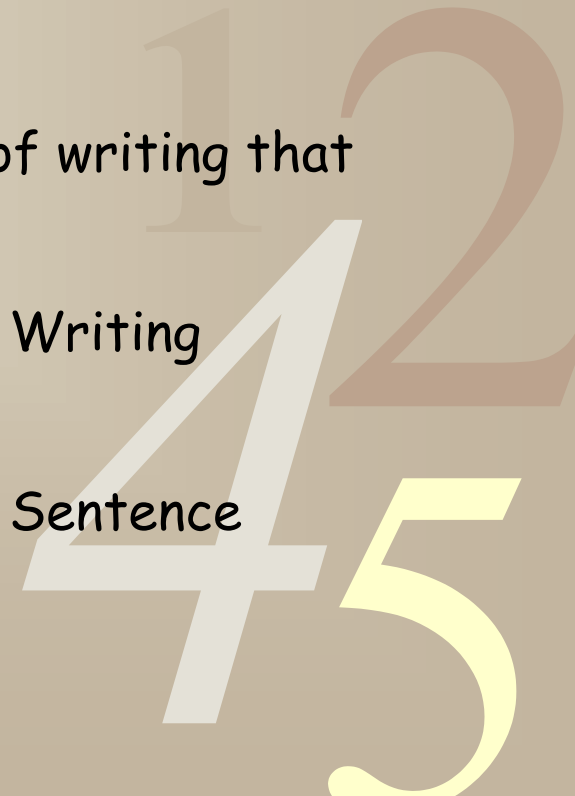
- Grade the following essays
- Identify student strengths
- Give "good" feedback
- Suggest areas where the student needs help
- Suggest areas for improvement of instruction

1245

# Some Writing Rubrics

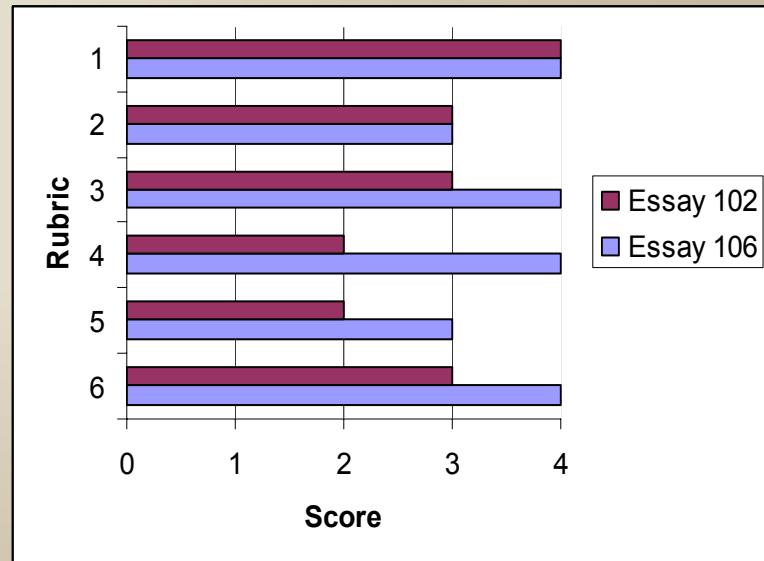
0011 0010 1010 1101 0001 0100 1011

- Identify a topic and determine its development
- Use multiple drafts to clarify language & intent
- Write for a wide (specific) audience
- Compose comprehensive & detailed examples of writing that contain the characteristics of selected form
- Understand conventions of English Grammar: Writing Conventions
- Understand conventions of English Grammar: Sentence Structure



# Writing Rubric Scores

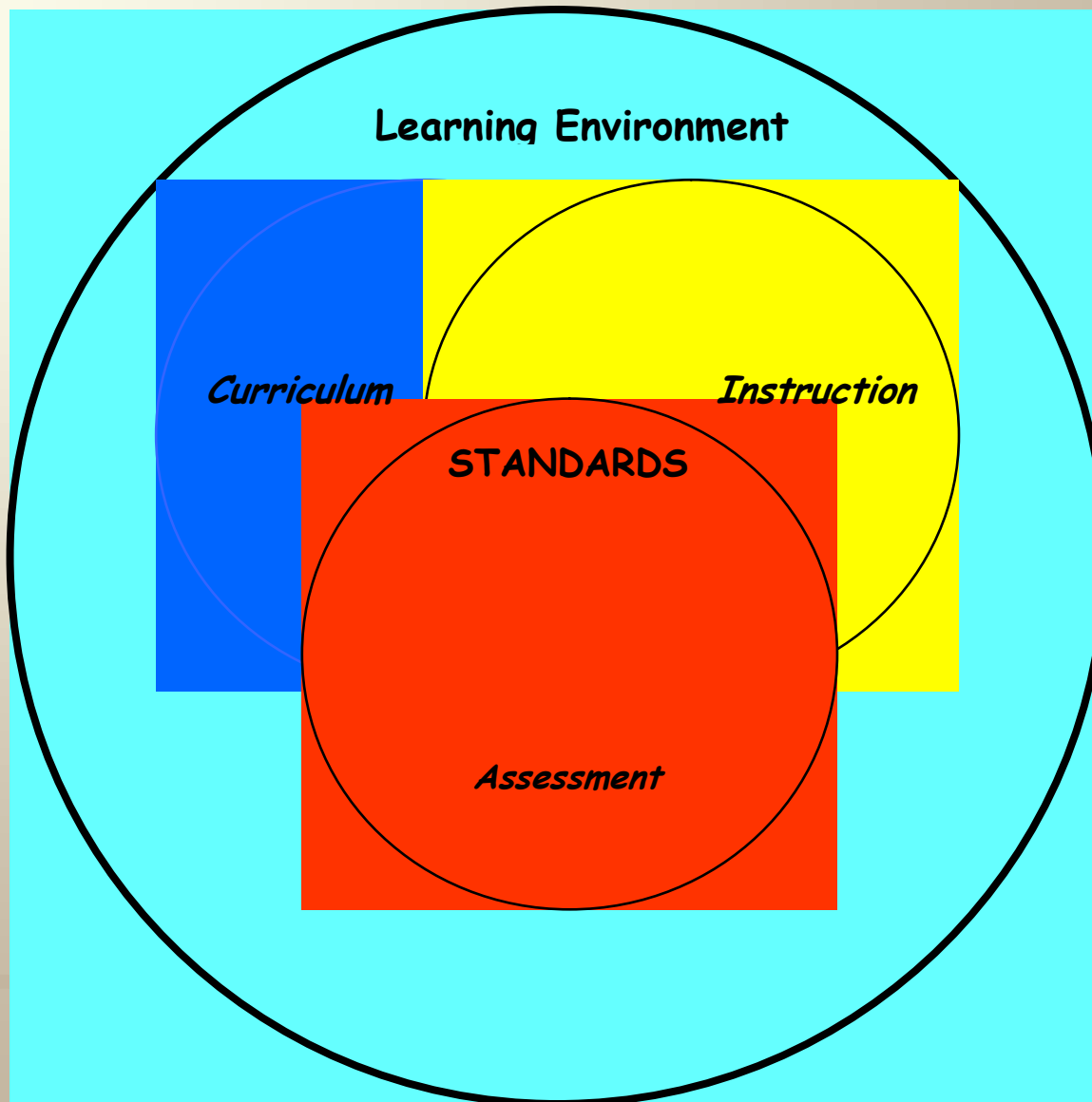
- 0011 0010 1010 1101 0001 0100 1011
1. Identify a topic and determine its development
  2. Use multiple drafts to clarify language & intent
  3. Write for a wide (specific) audience
  4. Compose comprehensive & detailed examples of writing that contain the characteristics of selected form
  5. Understand conventions of English Grammar: Writing Conventions
  6. Understand conventions of English Grammar: Sentence Structure



# Formal and Informal Assessments Should be Aligned:

- With Curriculum;
- With Instruction;
- With Standards;
- *and With Each Other*







# Local Assessment Questions

- 0011 0010 1010 1101 0001 0100 1011
- Do we assess student mastery of state standards before the test is given?
  - Do we use the results of these practice assessments to improve instruction?
  - Have we reviewed assessment blueprints and curriculum frameworks to determine alignment?

# Communications

- Do we have a plan to communicate results of state testing to the public?
- Do we regularly communicate with students and parents about progress toward meeting standards?
- Do we have a form of written communication that discusses assessment results?
- Do we have a plan for answering questions from the media about state assessment results?